

September 31, 1979

Vol. I No. 10

KEYBOARD ETC., STUFF: Latest words on the Bally Programmable Keyboard will be on p. 84.

KEYPAD SUBSTITUTE originally reported on p.47, has been completed by Ed. Larkin, who offers details as to how he did it in his ad this issue. The idea provides the user with a full size keyboard to do the same functions as the keypad, only in a more convenient form for most of us. You still have to punch two keys to get a letter, etc., as there is no built-in delay circuit that would add to the cost.

KEYBOARD/MEMORY UNIT mentioned on p.69 is getting a little closer. I am in the process of receiving a price quotation on the following: A memory board with 32K of RAM of which 16K is dedicated to the operating system which will be cassette - loaded at 1200 baud (about two minutes). Serial and parallel ports and expansion provisions to be included. Compatibility with the Jameco JE610 keyboard is expected. The operating system will be very sophisticated and unique. Details on the above are being included in this mailing to those who have responded to my survey. This hardware will not be generally advertised.

SERIAL NUMBERS are being collected against the day that a use is found for them. There are three Model Numbers, depending on the sales outlet:

BPA 1000 is sold by Montgomery Ward catalog

BPA 1100 is sold through retail/TV stores

BPA 1200 was sold by JS&A

The only real difference between them is the logo on the plastic cover. A small difference came about with the white case units that were marketed with only two hand controllers.

GAME MODIFICATIONS An addition to SLOT MACHINE by Phil Shafer takes care of the case where you win but are still short

1511 IF M<=0 M=M+N; GOTO 1515

Mike Fink says the following addition to CHECKERS will allow you to see the move immediately

1615 IF T>0 GOSUB 2000

Wayne Dunning notes that BLACK BOX should have a comma in line 145 after the first B and in front of the semicolon. Bob Strand indicates that line 490 should have a M=-1 instead of M=-M.

SIMON corrections of p. 45 have an inadvertent error of mine in that I added three GOTO 170 statements and then deleted 170 ! It should be retained 170 FC=0; NEXT X

REVIEWS OF GAMES etc., was mentioned on p. 76. I have received a number of names of potential reviewers so if any of you workers would like to have your outputs reviewed objectively on the basis of such categories as - level of challenge, originality, educational value, etc., plus some subjective comments, send your material to one or another of the below-listed gentlemen, and make your own arrangements. Include all documentation, etc., that would be sent to a purchaser. I in turn will print the reviews editing only for space limitations. We are working on a form grading system and will run a copy in the ARCADIAN for all to see.

VOLUNTEERS:

Steve Wilson	18015 Sally Ave.	Cleveland OH	44135
Don Daniels	3 Apex Rd	Melville NY	11746
Bill Rueger	336 Beach 38th St	Far Rockaway NY	11691
Phil Shafer	3708 Big Horn Trail	Plano TX	75075
Dick Hauser	635 Los Alamos Ave	Livermore CA	94550

David Bach
1953 Danmuth Pl.
Northville, Mich. 48167
Sept. 3, 1979

Now that we know where the text of our program is stored (4000 thru 4707 or decimally -24576 thru -22777), there are several uses we can make of this information:

1. Storing data in the text
2. Writing self-modifying code
3. Storing machine code in the text

These uses require `PEEKing` and/or `POKEing` with the `$(addr)` construct as described on page 14. (Jan. 13, 1979 "Arcadian")

Storing data in the text may be something you want to

consider as a substitute for the DATA statement available in more powerful BASICs. Since the data is in the text area, it will be written on the tape when you store your program. Simply branch around the data in your program so BASIC doesn't try to execute it.

Here's an example you might find useful. Suppose you want to play a tune in your program and you don't want to `PRINT` characters to do it. Loading `MT` serially with the desired tones (a series of `MT=addr` statements) is costly in terms of memory used.

The string variable may not be available, or even if it is available, it is not easy to store its values on tape. Why not write your tune as part of the program text. That way you will be storing it on taps with your program. And since Basic stores one character per byte, you get optimum use of memory. Try this:

```
1 GOTO 5
2 101231240234506034235321
5 NT=15
10 FOR Y=-24568 TO -22777 STEP 2
20 Z=$(Y)+256;IF EM=1 GOTO 50
30 MT=ZM;IF Z=13 GOTO 50
40 MT=ZINEXT Y
50 NT=J;STOP
```

For this to make sense, let me explain how Basic stores its text. To begin, statement numbers occupy 2 bytes of memory regardless of the number of digits in the statement number. However when a statement number is referenced (as in `GOTO 2` of the first line), the number of memory bytes used is equivalent to the number of digits in the statement number. In fact, all keystrokes in a statement (minus the bottom row of qualifiers on your keypad) require one byte of memory each. Thus keywords such as `GOTO` and `INPUT` use only one byte each. In addition, the `OO` keystroke at the end of every statement uses a byte of memory. It is stored as a 13 (hexadecimal `OD`) and explains how the end of the song is detected in line 20 or 30.

Here then is how the beginning of this program is stored in the text area:

Location	Content	Comments
-24576	Stmt. No. 1	Occupies 2 bytes
-24574	<code>GOTO</code>	Occupies 1 byte
-24573	5	Hex 35 or decimal 53 represents character '5',
-24572	<code>OO</code> character	Hex <code>OD</code> or decimal 13
Stmt. No. 2	" (quote char.)	Occupies 2 bytes
-24571		Inserted so Basic could distinguish the tune from stat. no. 2
-24569		This location is initial value in stat. 10
-24568	3 (beginning of tune)	

Self modifying programs are fun to play with. There are dangers involved since the logic is more complex. And to restart a program you'll probably have to reload it in its original form. Nevertheless, the technique does have its applications.

As an example of self modifying code, key in the following program. After execution notice how line 10 has changed.

```
10 GOTO 20
20 PRINT " FIRST LIST ,1,"
30 LIST ,1
40 1(-24573)=-12342
50 GOTO 10
```

more . . .

```

824 LINE S=10,T=5,4:LINE S=10,
    T=5,1:FC=7
830 FOR N=10 TO 24:BOX S,T,N,N,2:
    NEXT N:R=(23)-R*(21)-Q
840 CX=65:OT=40:ST=0:PRINT
    "ZZZZZAP!"NT=3:
    IF R=10-C*(13-RND (76))-38:
        GOTO 860
850 D=14:R=14:RND (76)-38
860 GOSUB 700:G=0:RETURN

```

This is a two player game. Player one is the invisible space ship on the left side of the screen. He can move it up or down by pushing his joystick forward or back. When he pulls his trigger, he shoots across the screen at the invisible ship of player 2. A shot also exposes his position on the screen. The invisible ship of player 2 is on the right side of the screen and is similarly controlled. Thaknob setting determines the angle of the shot.

```

1 .SPACE WAR
2 . D BACH 17-9
10 GOSUB 100
20 IF TR(1)=1:GOSUB 200
30 IF R=0:GOSUB 800
40 IF JT(1)/Q=JT(1):GOSUB 300
50 IF TR(2)=1:GOSUB 400
60 IF R=0:GOSUB 800
70 IF JT(2)/Q=JT(2):GOSUB 500
80 GOTO 20
100 CLEAR 150:Q=FC=0:R=END (12)
    IF Q=0:GOSUB 700:FOR L=
        150 TO 159:IF L=END
        (80):BOX L,150-75:PRINT
        L+RND (76)-37,1,1:PRINT
        L+RND (76)-38:IF Q=7:
            RETURN
110 R=END (76)-38:R=Q=FC=7:
200 H=0:Q=KN(1)/(-3):LINE -60,
    A,4:MT=7:LINE 60,Q,3:LINE
    -60,A,4:LINE 60,Q,3:IF Q<3
    +5:IF Q>3:SH=1
210 RETURN
300 A=4+3*Q:IF A>40:A=5
310 IF A<40:A=5
320 RETURN
400 H=0:Q=KN(2)/(-3):LINE 60,B,4:
    MT=2:LINE -60,Q,3:LINE 60,
    B,4:MT=5:SH=2
410 RETURN
500 B=4+3*Q:IF B>40:B=5
510 IF B<40:B=5
520 RETURN
700 CX=65:OT=40:PRINT Q,D
710 IF (Q=15)+(-D=15)=0:RETURN
720 NT=0:CX=8:OT=5:PRINT
    "GAMES":CX=8:OT=5:PRINT
    "MOVIE":NT=3:FC=0:BC=7:STOP
800 BC=7:R=(23)-R*(21)-Q=25:
    BC=0:FC=0:IF H=100:810
905 BC=7:FC=7:SH=60:IF A=100:815
810 BC=7:FC=7:SH=60:IF B=
    100:817 BC=7:FC=0:IF Q=33:813
817 BC=7:FC=0:IF T=33:814
818 BC=0:FC=0:IF R=5:7:10:4:
    LINE 845,T=10:1
820 BC=7:FC=7:LINE 8=10,T=5,4:
    LINE 8=10,T=5,1
822 LINE 8=5,T=10,1:BC=0:FC=0:
    LINE 8=5,T=10,1

```

Using the Bally Basic Text Area - Inach - page 3

```

60 PRINT " SECOND LIST ,1"
70 LIST ,1
80 STOP

```

I've tried putting machine code in the text but so far I've been unable to execute it there. Bally Basic will honor a call to machine code in other memory locations (eg. the line input buffer), but the keyboard looks up when the call address is within the text area. If anyone can shed light on this I'd like to hear.

In closing, just a few notes on these techniques to help you avoid trouble:

- Remember each PEEK or POKE references 2 bytes of memory (hence STEP 2 in line 10 of first program above)
- Since memory addresses are expressed as negative numbers (starting with -24576) you advance by decrementing the absolute value

- Page 12 of the Bally Basic Hackers Guide tells you in decimal how each character is represented internally, including the keywords

- If the values you store in the text area are not recognizable as characters to Basic, they will load with question marks, but the load should be accurate.

- If you have a program in memory and want to know the address of, say, statement 5000, enter the following commands directly:
 >FOR N=-24576 TO -22777:IF S(N)/5000=0:N
 >PRINT N

- Remember the 00 character at the end of every line when counting bytes.

SPEEDUP TO TAPE A note from Ed Mulholland says that increasing the machine's speed by decreasing the Note Time will work for tape transcriptions. Ed reduces NT to 1 in the directions to transcribe- :PRINT;NT=1;LIST saying that if NT is 0, there won't be any audio. But Ed Larkin has reported that if the NT is put ahead of the other commands, it will work for him - NT=0;PRINT;LIST. See what works for your machine.

DIVISION with results in non-decimal format was run by Marc Gladstein for those who would like to see the quotient printed with the remainder continued as a fraction. The gist of it is -

```
10 INPUT "D1=" X
20 INPUT "D2=" Y
30 Q= X/Y: R=RM
40 PRINT "QUOTIENT = "
50 PRINT #1,Q,:IF R PRINT #1," ",R,"/",Y
```

SUBSCRIPTION RENEWAL TIME is coming up. Because of the timeless(?) value of most of the material of the ARCADIAN, and because I don't have any bookkeeping capability (it would be nice to have a computer), all subscriptions are on a volume basis, one year from November to October, and everyone receives all the back issues in a lump at the time he/she subscribes. I am now soliciting subscriptions for Volume 2, to start in November of 1979, at the rate of \$10. The issues will again be guaranteed as bimonthly, with added issues as material becomes available, the same as was true for 1979. I expect that with the keyboard/memory that we are working on now will generate a lot of activity in its own right as will peripherals. Tiny BASIC will continue to surprise us, and we are developing some hardware modifications to the basic machine to make it better, so there seems to be a lot of material that will come forth.

TUTORIAL on text area by Dave Ibach includes a game that sounds interesting. I have not had the opportunity to try it out as yet. In the second line of Dave's tutorial is the indication of storage being located at -24576 thru -22777. This serves as a correction to the table I printed on p. 34, "Text Area".

DICTIONARY by Steve Walpole on p.82+ provides you with a conversion between some commands used in other BASIC language programs and the TinyBASIC of Bally. From a format standpoint, Steve first gives the general command and a short statement about it, and then how to do the same thing in TinyBASIC, or as close to it as possible.

SAMPLE PAGE shown at the top of p.83 is probably understandable only to those who can read assembly language. It is my intent to have the most interesting of these pages "transcribed" into English for the rest of us, and also to have some programs developed utilizing these for all of us.

SUGGESTIONS, etc. I have a number of programs on hand for the next issue. My problem is the transcription of them from whatever form they are in into one that is legible, especially after reduction (usually to 75 or 50%). I would appreciate program listings to be either: typed, or clearly hand printed on a form such as that provided by Chuck Thomka. Most company forms have lots of little bitty boxes that each letter/character fits into and/or colored sections that do not make for good clear reproduction. Please include explanations. Anything that can be directly printed in the ARCADIAN should be typed unless your handwriting is Spencerian or you use the Palmer Method. If I receive listings which have to be transcribed, they will be sent back to the originator for proofreading after transcription/reduction. I assume that those that arrive all ready for printing will have been proofed.

PROGRAM USING PX(X,Y) AS A LOCATION SENSOR

	COMMENTS
10 CLEAR	
20 FOR N=1 TO 19 STEP 2	Sets 10 location sensors at
30 @ (N)=RND(100) - 50	PX @ (N), @ (N+1)
40 @ (N+1)=RND(60) - 30	
50 NEXT N	
60 (see optional section)	
90 X=70; Y=0	Start location for box marker
100 Y=X/11;X=X-Y	
110 Y=X/11;X=X-Y	
120 IF X<70 X=70	Sets movement limits on box marker
130 IF X>70 X=70	
140 IF Y<-35 Y=-35	
150 IF Y>35 Y=35	displays box (player marker)
160 BOX X,Y,5,5,1	
200 FOR N=1 TO 19 STEP 2	Test if marker is over any
210 IF PX @ (N),@ (N+1) =1	GOTO 300 PX sensor location
220 NEXT N	
230 BOX X,Y,5,5,2	Erase marker, repeat
240 GOTO 100	
300 BOX X,Y,7,7,3	Visual feed back for sensor response
310 BOX X,Y,9,9,3	(trap appears surrounding marker)
320 PRINT "CAUGHT!"	
330 STOP	

Options to display sensor locations visually as marker is moved about:

Add the following:

```

60 GOSUB 400
400 FOR N=1 TO 19 STEP 2
410 BOX @ (N), @ (N+1), 11, 11, 3
420 BOX @ (N), @ (N+1), 13, 13, 3
430 NEXT N
440 RETURN
    
```

The following are my comments on the PX function:

The possibility of the PX function as a location sensor seems reasonable if you only have to monitor whether a player (meaning a visible marker such as a BOX) is at a given location or not.

I have enclosed a simple program which uses the PX(X,Y) function as a location sensor in the manner of a trap being sprung. Ten traps (explosive mines, invisible enemy ships, etc.) are set randomly, and if the player moves over any of the trap locations, he is trapped (caught, exploded, etc.).

I don't see how this function could be used in two-player games in general, since only two conditions can exist: PX(X,Y)=0 or PX(X,Y)=1. In many games, monitoring is needed for three functions: PLAYER #1 (black), PLAYER #2 (white), and neither player. This is the case with most board games.

Two-player games where both players have black markers could use PX to monitor both players, since only one player can move at any one moment.

Also, PX could be used to monitor the intersection of two player markers if they were reverse BOX markers. There intersection would then be white if the markers are black, and the PX function would equal 0 when they intersected.

Sincerely yours,

Steve Walters

Steven L. Walters

556 Langfield
Northville, MI. 48167

10 A=45

```

=0      GO TO 10
200     PRINT "↑ : RETURN"
400     PRINT "↑ : RETURN"
600     PRINT "↑ : RETURN"
800     PRINT "↑ : RETURN"

```

• MOORE and TOSTADT on page 1075

```

of the DATA statement is
that value to the second
table. etc. Therefore,
A=25; B=40; C=44; and D=60
with Bally BASIC, each
have to be assigned ind-
but they can be placed
line.

10 A=25:B=40:C=44:D=60

```

THIS IS A PAGE TAKEN FROM A DOCUMENT THAT I HAVE WHICH INCLUDES ABOUT 140 PAGES OF ROUTINE DESCRIPTIONS SIMILAR TO THE SAMPLE, PLUS ABOUT 200 PAGES OF OBJECT CODES FOR APPARENTLY ALL THE ROUTINES IN THE MACHINE. SCREEN ALPHANUMERIC DISTIN IF YOU ARE INTERESTED IN THE CONTENTS OF THIS VOLUME, DROP ME A LINE OR CALL ME

Calling Sequence:

SYSTEM DISTIN
or
SYSSUK DISTIN
DEFB (X co-ordinate)
DEFB (Y co-ordinate)
DEFB (options)
DE=X,Y co-ordinates
X=options (see note below)
IX=Alternate Font Descriptor (not loaded)
DE=updated

Arguments:

Outputs:

Description:

This routine displays the system time (GTHNS,GTSECS) at the co-ordinates specified in the form IMISS, where Minutes, Seconds are optional.

Notes:

The small character set is used and one level of enlarge factor is permitted.

Options are the same as the alphanumeric display routine except that bit 7=1 to display colon and seconds; bit 7=0 to suppress colon and seconds.

THEN - This means the same as GOTO. It is usually found in an IF statement. Just replace THEN with GOTO.

REN - REN stands for "remark" and it means just that. It has no special function except to provide an indication of the documentation of the program.

10 REN THIS PROGRAM SIMULATES 20 REN NEGATIVE GRAVITY IN SPACE

With Bally BASIC just use a period (.) in the place of REN.

10 .THIS PROGRAM SIMULATES 20 .NEGATIVE GRAVITY IN SPACE

Since the Bally system does not have a line number, you must add one to these lines unless your program is short enough to allow it.

TAB - TAB refers to how many spaces from the left side of the screen to print before printing the word(s) following it.

10 PRINT TAB(5) "COMPUTER"

With Bally BASIC enclose the number of spaces in the quotes along with the word to be printed or use the CX function.

10 PRINT " COMPUTER"
20 CX=47:PRINT "COMPUTER"
RUN
COMPUTER

To determine the value of CX, start with 1 for 1 space and add 1 for each space thereafter. For example, spaces CX=65, 3 spaces CX=59, etc.

SYMBOL TRANSLATIONS

Multiple sign - / to X
Division sign - / to 9
String symbol - \$ to 9
GOLOC (in Bally BASIC) is used to locate a string in memory. The colon (:) is used, and in other versions of BASIC, the dollar sign (\$) is used. Be careful not to mistake these for a division sign.

ADS

2-player BATTLESHIP; 1 player JOTTO/SENSOR (two 120-word versions available-general words, and expert); variable size/difficulty MASTERMIND. All for \$6 your tape or \$7 his tape. Don Daniels, 3 Apex Rd. Melville NY 11746

Bally BASIC \$30; Interface \$30; Brickyard/Clowns, Blackjack/Poker, SpeedMath, SeaWolf/Missile @\$15 ea. 8 Handcontrollers @\$5 ea. J. Jones, 723 S. Gardena, Rialto CA 92376

LISTINGS only for COMPUTER CRAPS \$2; SLOT MACHINE \$2; RUSSIAN ROULETTE \$1; SPELL'N'SCORE \$1.50; CHECKBOOK BALANCER \$1.50 or \$7 for all. Also Service on hand controllers. S. Walpole, 11480 Beirut Ct. #204, Sappington MO, 63126

KEYBOARD in parallel with existing keypad: plans, specifications and photos \$10.ppd. Ed Larkin, Outlet Rd. Hallowell, ME 04347

HARDWARE ITEM!-JOYSTICK CONTROLLER, a true joystick (2-100K pots), 360 deg. rotation, with two RS-232 connectors, black plastic case, and 10 MICROSWITCHES!! This is a multi-controller device, comes with software on tape w/listing & instructions on writing your own programs for it. \$34.95 (+\$3 p&h) available Oct 22. Write for details. Also, XY TUTORIAL package, for exclusive controlling of graphics, 12 pages +software on tape with SIX programs, listings included. \$9.95. NEW ITEMS-SEEREE'S COMPUTING, TIM HAYS, 456 Granite, Monrovia CA, 91016

DEALER selling out all stock on Bally-games, Basic, etc., all items at our original cost. Video Environment +, Inc. 580 New Loudon Rd. Latham NY 12110

BALLY ADD-ON I've kept this space open hoping for a last-minute official word, but I did not get any and time is short. What I've heard from various unofficial sources is that the FCC did allow the TI request which provides relief in the TVI areas (the news release has yet to come out). Whether Bally will react to this in a positive manner is a question. My sources are all down and think that chances are very slim that any Level III hardware will actually be produced. Many dealers have given up the line, as have some distributors. I hope to have some definitive news in the next issue, which by the way will be the last of Volume I.

= 84 =

ARCADIAN

Robert Fabris, typist
3626 Morrie Dr.
San José, CA 95127

FIRST CLASS

19553 Dartmouth Place
Northville, Michigan 48167
September 3, 1979

Mr. Robert Fabris
ARCADIAN
3626 Morrie Dr.
San Jose, Cal. 95127

Dear Bob,

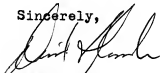
In response to your request for a show of hands on the programmable keyboard:

1. No. \$650 is a bit steep for me unless its really great
2. Yes. Eventually I'll have to upgrade
3. Yes. If we have some way of demonstrating performance and reliability.

My Bally is Model No. BPA-1100 Serial No. 54609.

I'm enclosing a tutorial that summarizes the research I've been doing in the Bally Basic Text Area. Also the text for a Space Wars game.

Sincerely,



David Ibach

```
60 PRINT " SECOND LIST ,1:"  
70 LIST ,1  
80 STOP
```

I've tried putting machine code in the text but so far I've been unable to execute it there. Bally Basic will honor a call to machine code in other memory locations (eg. the line input buffer), but the keyboard locks up when the call address is within the text area. If anyone can shed light on this I'd like to hear.

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- Remember each PEEK or POKE references 2 bytes of memory (hence STEP 2 in line 10 of first program above)
- Since memory addresses are expressed as negative numbers (starting with -24576) you advance by decrementing the absolute value
- Page 12 of the Bally Basic Hackers Guide tells you in decimal how each character is represented internally, including the keywords
- If the values you store in the text area are not recognizable as characters to Basic, they will load with question marks, but the load should be accurate.
- If you have a program in memory and want to know the address of, say, statement 5200, enter the following commands directly:
 >FOR N=-24576 TO -22777;IF \$(N)5200NEXT N
 >PRINT N
- Remember the GO character at the end of every line when counting bytes.

For this to make sense, let me explain how Bally Basic stores its text. To begin, statement numbers occupy 2 bytes of memory regardless of the number of digits in the statement number. However when a statement number is referenced (as in GOTO 5 of the first line), the number of memory bytes used is equivalent to the number of digits in the statement number. In fact, all keystrokes in a statement (minus the bottom row of qualifiers on your keypad) require one byte of memory each. Thus keywords such as GOTO and INPUT use only one byte each. In addition, the GO keystroke at the end of every statement uses a byte of memory. It is stored as a 13 (hexadecimal OD) and explains how the end of the song is detected in line 20 or 30.

Here then is how the beginning of this program is stored in the text area:

<u>Location</u>	<u>Content</u>	<u>Comments</u>
-24576	Stmt. No. 1	Occupies 2 bytes
-24574	GOTO	Occupies 1 byte
-24573	5	Hex 35 or decimal 53 represents character '5'
-24572	GO character	Hex OD or decimal 13
-24571	Stmt. No. 2	Occupies 2 bytes
-24569	" (quote char.)	Inserted so Basic could distinguish the tune from stmt. no. 2
-24568	3 (beginning of tune)	This location is initial Y value in stmt. 10

Self modifying programs are fun to play with. There are dangers involved since the logic is more complex. And to restart a program you'll probably have to reload it in its original form. Nevertheless, the technique does have its applications.

As an example of self modifying code, key in the following program. After execution notice how line 10 has changed.

```

10 GOTO 20
20 PRINT " FIRST LIST ,1:"
30 LIST ,1
40 %(-24573)=12342
50 GOTO 10

```

more

TUTORIAL - USING THE BALLY BASIC TEXT AREA

David Ibach
19553 Dartmouth Pl.
Northville, Mich. 48167
Sept. 3, 1979

Now that we know where the text of our program is stored (A000 thru A707 or decimally -24576 thru -22777), there are several uses we can make of this information:

1. Storing data in the text
2. Writing self-modifying code
3. Storing machine code in the text

These uses require PEEKing and/or POKEing with the $\%(addr)$ construct as described on page 19. (Jan. 13, 1979 "Arcadian")

Storing data in the text may be something you want to consider as a substitute for the DATA statement available in more powerful BASICs. Since the data is in the text area, it will be written on the tape when you store your program. Simply branch around the data in your program so BASIC doesn't try to execute it.

Here's an example you might find useful. Suppose you want to play a tune in your program and you don't want to PRINT characters to do it. Loading MU serially with the desired tones (a series of MU=dd statements) is costly in terms of memory used. The string variable may not be available, or even if it is available, it is not easy to store its values on tape. Why not write your tune as part of the program text. That way you will be storing it on tape with your program. And since Bally Basic stores **one** character per byte, you get optimum use of memory. Try this:

```
1 GOTO 5
2 "30123123402342345060341235321
5 NT=15
10 FOR Y=-24568 TO -22777 STEP 2
20 Z=%(Y)+256;IF RM=13 GOTO 50
30 MU=RM;IF Z=13 GOTO 50
40 MU=Z;NEXT Y
50 NT=3;STOP
```

VOLUNTEER

6 REVIEWERS:

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Don Daniels 3 Apex Road, Melville, NY 11746
Bill Rueger 336 Beach 38th St., Far Rockaway, NY 116
Phil Shafer 3708 Big Horn Trail, Plano TX 75075

+ uh
Hauser -
Livermore

PARALLEL KEYBOARD

(77)

DIVISION ^{results} in ~~the~~ non-decimal format was run off by Marc Gladstein for those who would like to see the quotient printed with the remainder as a fraction. The gist of it is:

```
10 INPUT "D1=" X
20 INPUT "D2=" Y
30 Q=X/Y; R=R/M
40 PRINT "QUOTIENT="
50 PRINT #1, Q; IF R PRINT #1, " ", R, "/", Y
```

REVIEWS of GAMES, etc. were mentioned on p. 76. I have received a number of names of potential reviewers, ~~between~~ ~~between~~ so if any of you workers would like to have your outputs reviewed objectively on the basis of such categories as level of challenge, originality, educational value, etc., send a copy to one or more of those listed below. Include all documentation, ~~that will be reviewed~~ ~~also - # should~~ that a purchaser would receive as well. I in turn will print the reviews I receive (editing only for space limitations if necessary).

(7)

SERIAL NUMBERS are being collected against the day a case is found for them. There are three Model Numbers, depending on the sales outlet -

BPA-1000 is sold by Montgomery Ward stores
BPA-1100 is sold thru other retail outlets
BPA-1200 was sold by JSA

The only real difference between them is the logo on the plastic cover. A small discrepancy came about with the white case units that were marketed with only two hand controllers.

GAME MODIFICATIONS - An addition to SLOT MACHINE by Phil Shafer takes care of the case where you win but are still in the hole

1511 IF M \neq 0 M = M+N; GOTO 1515

Mike Fink says that the following addition to CHECKERS will allow you to see your move immediately

1615 IF T \neq 0 GOSUB 2000

Wayne Dunning notes that BLACK BOX should have a comma in line 145 after the last B and in front of the semicolon. Bob Strand indicates that line 490 should have a M=-1 instead of M=-M.

SIMON corrections of P. 155 have an inadvertent error of mine in that I added three GOTO 170 statements and then deleted 170. It should be retained - 170 FC=0; NEXT X

SPEEDUP TO TAPE

A note from Ed Mulholland says that :PRINT, NT=1; LIST will speed transmission instead to tape at about 500 baud. Ed Larkin has reported that if the command NT=0; NT=0; PRINT; LIST is used, the

more time will work for tape transmission. Ed reduces NT+1 in the line :PRINT, NT=1; LIST, saying that if NT is 0, there won't be any audio. But Ed Larkin has reported that if the NT is put ahead of the other commands, it will work for him

INTERFACE MODIFICATION has been done by Ed Larkin, who found a space under the upper section of the cabinet to mount the pc board of the interface. He has added a 3pst switch to transfer power and interface lines.

SUBSCRIPTION RENEWAL TIME is coming up.

Because of the timeless⁽¹⁾ value of the material in the ARCADIAN, and because I don't have any bookkeeping capability, ~~everybody's~~ subscriptions are on a one-year (Oct to Nov) basis only ~~and that takes care of any~~ ^{fault.} ~~each issue question, etc.~~

And as the calendar shows, Fall is rolling by again, and I am now soliciting subscriptions for the fiscal 1980 set of issues, again Oct to Nov. However, the rate will be \$10 for the year. ^(A) ~~For the new subscribers~~ ~~the 1979 set of issues will have to be~~ ^{repeated}

Next year, I expect that ~~it~~ ^{it} will be a the key board/ of that we are now working on will generate a lot of activity in its own right as well as with peripherals. TTY Basic will continue to surprise us, and we are developing some hardware modifications to the basic machine to make it better. as there seem to be ~~enough~~ a lot of material to be developed. The basis of the subscription will be for a guaranteed business. The ^{newsletter} ~~magazine~~ will be guaranteed as a bimonthly, with extra issues as material warrants, same as this year.

From: Scott Walpole
11480 Beirut Court #204
Sappington, MO 63126

To: Robert Fabris
3626 Morrie Drive
San Jose, CA 95127

Dear Mr. Fabris,

The Arcadian magazine has been very helpful to me in understanding the Bally System better. I always look forward to receiving it so I can try out the new programs and learn more about my computer.

#10
I have enclosed a few things I hope you will find useful. The first is a dictionary of some common (or maybe not so common) commands of larger versions of BASIC, their meanings, and how to convert them for use with Bally BASIC. Then there is a program called Number Match. The object of this game is to repeat the displayed numbers as quickly as possible for the highest score. My current record is 140. And last of all, there is a program named Random Box, a music program that plays "Hello Dolly", and another music program that plays "Popeye the Sailor".

ad 12
I also have five other programs available for a small fee: #1-Computer Craps-\$2.00 #2-Slot Machine-\$2.00 #3-Russian Roulette-\$1.00 #4-Spell 'n' Score-\$1.50 #5-Checkbook Balancer-\$1.50 Listings only. Buy all five and get Russian Roulette free. Total price \$7.00 I also do service on hand controls. If something is wrong with one of your controls write me describing the problem. (Please include the above information in the ADS section in the next edition of Arcadian.)

Y44
The answer to all of the questions on page 55 is Yes, I will pay up to 650. for a keyboard but I will not buy anything without seeing it first in person.

When I first got my machine, I found the static that my television received when my computer was turned on to be unbearable. (Actually, the static was part of the actual film being shown on channel 4. I found out it does this because I live not more than 100 meters from the channel 4 tower itself and the signal is so strong that gets into my set even at channel 3 and with the antenna disconnected.) So, I discovered that by connecting a short piece of wire from the side of the TV/Game switchbox (with tape) to one end of the UHF loop antenna relieved the static so well, I would have thought there never was a problem. This may not work in every case but it is worth a try.

For numerous mistakes, may I recommend Liquid Paper correction fluid. As you can see by the white patches in my letter it works pretty good.

I wish you continued success with whatever it is you do.

Sincerely,

Scott Walpole

Model #ABPA-1100 Serial #52330

DICTIONARY of TRANSLATIONS
from BASIC to Bally BASIC

AND - The AND statement allows for more than one condition to be placed in a single IF statement.

```
10 IF A=0 AND B=0 GOTO 120
```

The program will branch to 120 only if A=0 AND B=0. With Bally BASIC use a second IF statement in the place of AND or put the conditions in parentheses.

```
10 IF A=0 IF B=0 GOTO 120
   OR
10 IF (A=0)+(B=0)=2 GOTO 120
```

(See page 52)

ASC-CHR\$ - The ASC function converts any given character into its ASCII code number while the CHR\$ function does just the opposite, converting an ASCII code number into its equivalent character.

```
10 A=ASC(A)
20 PRINT A
30 A$=CHR$(65)
40 PRINT A$
RUN
65
A
```

With Bally BASIC, the advantage of turning a letter into a number is because you can't store a letter in a string or counter only a number. Then by using the TV function you can call upon a number to be changed into a letter and displayed on the screen.

Use the KP function instead of ASC:

```
10 K=KP
20 PRINT K
30 TV=K
RUN
```

65

A

In line 10 of the example, the computer waits until a character is typed in on the keypad. Then it automatically converts that character into

its ASCII code number and stores it in the K counter. In line 20 the computer prints the value of K and in line 30 the computer converts the value of K into its ASCII character and displays it on the screen. If you do not want to have to input the same letter every time you run the program look up the ASCII code number you want on page 16 in the Decimal column and store that number directly in the counter or string.

```
10 K=65
20 PRINT K
30 TV=K
RUN
   65
A
```

INT - This function removes the decimal from a number and returns only the whole number.

```
10 A=4+3
20 PRINT A
30 PRINT INT(A)
RUN
1.3333333
1
```

Bally BASIC does this automatically so INT or anything else is not necessary.

```
10 A=4+3
20 PRINT A
RUN
   1
```

LET - LET assigns a variable or string to any given value.

```
10 LET A=45
```

LET is not necessary with Bally BASIC. Just omit the statement LET.

```
10 A=45
```

NOT - NOT is used with the IF statement.

10 IF NOT A GOTO 120

If A=0 the program will branch to 120. If A equals any other positive or negative number and the program will resume with the next line number. With Bally BASIC use:

10 IF A=0 GOTO 120

ON-GOSUB - This statement is used for multiple branching.

10 ON A GOSUB 120,200,340,500

In the example, the program will GOSUB 120 if A=1; 200 if A=2; 340 if A=3; and 500 if A=4. There are a couple of ways this can be done with Bally BASIC. The first one is where you have to use many lines.

```
10 IF A=1 GOSUB 120
20 IF A=2 GOSUB 200
30 IF A=3 GOSUB 340
40 IF A=4 GOSUB 500
```

This takes up too many bytes to be practical so there is a better way. Space the line numbers of the sub-routines evenly apart (200 in the example) so that the product of Ax200 will guide the program to the correct line. Try the sample program below:

```
5 CLEAR
10 A=0
20 IF JY(1)=1 A=1
30 IF JY(1)=-1 A=2
40 IF JX(1)=-1 A=3
50 IF JX(1)=1 A=4
60 CY=0;CX=0
70 IF A=0 PRINT " ";GOTO 10
80 GOSUB Ax200
90 GOTO 10
200 PRINT "↑";RETURN
400 PRINT "↓";RETURN
600 PRINT "←";RETURN
800 PRINT "→";RETURN
```

Move the joystick to control the arrow.

ON-GOTO - Works the same way as ON-GOSUB except using the GOTO statement.

OR - Works the same way as AND, allowing more than one condition to be placed in a single IF statement.

10 IF A=0 OR B=0 GOTO 120

Except with the OR statement the program will branch to 120 if A=0 OR B=0 as with AND the program would branch only if A=0 AND B=0. With Bally BASIC use:

10 IF (A=0)+(B=0) GOTO 120

(See page 52)

READ-DATA - This statement is used when large amounts of variables and/or strings are to be assigned values.

```
10 READ A,B,C,D
20 DATA 25,40,44,60
```

When the program reaches a READ statement, the computer searches for the first DATA statement, takes the first value of that statement and assigns that value to the first variable of the READ statement. If there are any more variables in that READ statement the computer will then search for the second value of the DATA statement and assign that value to the second READ variable, etc. Therefore, in the example, A=25; B=40; C=44; and D=60. To do this with Bally BASIC, each variable will have to be assigned individually but they can be placed on the same line.

10 A=25;B=40;C=44;D=60

REM - REM stands for "remark" and it means just that. It has no special function except to provide an in-program documentation of the program.

```
10 REM THIS PROGRAM SIMULATES
20 REM NEGATIVE GRAVITY IN SPACE
```

With Bally BASIC just use a period (.) in the place of REM.

```
10 .THIS PROGRAM SIMULATES
20 .NEGATIVE GRAVITY IN SPACE
```

Since the Bally system does not have alot of memory, it is best to leave out these lines unless your program is short enough to allow it.

TAB - TAB refers to how many spaces from the left side of the screen to print before printing the word(s) following it.

```
10 PRINT TAB(5) "COMPUTER"
```

With Bally BASIC enclose the number of spaces in the quotes along with the word to be printed or use the CX function.

```
10 PRINT "      COMPUTER"
20 CX=-47;PRINT "COMPUTER"
RUN
```

```
      COMPUTER
      COMPUTER
```

To determine the value of CX, start with -71 for 1 space and add 6 for each additional space. So for 2 spaces CX=-65, 3 spaces CX=-59, etc.

SYMBOL TRANSLATIONS

Multiplication sign- * to x
Division sign - / to +
String symbol - \$ to @
Colon (:)-This symbol is used in most BASICs to allow more than one command per line. With Bally BASIC the semicolon (;) is used. And in other versions it can be a slash (/) or backslash (\). Be careful not to mistake these for a division sign.

THEN - This means the same as GOTO. It is usually found in an IF statement. Just replace THEN with GOTO.

10?

1213 L.S. Alfred Sr
LA 90035

Dear Mr. Fabris,

I have developed a division routine to print out the answer with a fractional quotient.

Here is the program:

```
10. FRACTIONAL QUOTIENT
20. BY MARC GLADSTEIN

30 CLEAR; NT=0; PRINT "D1 ÷ D2 = Q"
40 PRINT
50 INPUT "D1 =" X
60 INPUT "D2 =" Y
70 Q=X÷Y; R=RM
80 PRINT; PRINT
90 PRINT "QUOTIENT = ",
100 PRINT #1, Q,; IF R PRINT #1, " ",
    R, "/", Y
110 PRINT; PRINT "ANOTHER CALCULATION?"
120 IF KP=89 RUN
```

Sincerely, Marc Gladstein

10

Aug 13, 1979

Dear Bob. ✓

Please list the following items
for sale in the next issue of
the Arcadian

- #30 1- Bally Basic
- #30 1- Audio Interface
- #15 1- Brickyard/Clowns Videcade
- #15 1- Blackjack/Poker Videcade
- #15 1- Speed Math Videcade
- #15 1- Seawolf/Missile Videcade
- #5 ea Game Control Handles (8)

Thank you
James P Jones

JAMES P JONES
723 S. GARDENA
RIALTO, CA. 92376
PH 714-874-4894

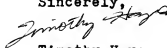
Dear Mr. Fabris,

Please put me on your list of people who will be kept up to date on the expansion for the Bally arcade. My serial # is 6351. Also, please put this ad in the ARCADIAN you are currently working on;

✓ AD { HARDWARE ITEM!-JOYSTICK CONTROLLER, a true joystick (2-100K pots), 360 deg. rotation, with two RS-232 connectors, black plastic case, and 10 MICROSWITCHES!! This is a multi-controller device, comes with software on tape W/listing & instructions on writing your own own programs for it.\$34.95 (+\$3 p&h) available Oct. 22. Write for details. Also, XY TUTORIAL package, for exclusive controlling of graphics, 12 pages +software on tape with SIX programs, listings included. \$9.95. NEW ITEMS-SEBREE'S COMPUTING, TIM HAYS, 456 Granite, Monrovia, CA. 91016

I realize that this AD appears long, if I could, I would pay just to get it all in. When I talked to you on the phone a few days ago, you said there would be enough room anyway. If you do run out of room, a suggestion might be to make your margins smaller, so you could fit more words on one line on the last page, or go half-size. In any case, please see if you can fit my AD in this issue of the ARCADIANs. Thank you.

Sincerely,



Timothy Hays

Dealer selling out all stock on Bally pro. arcade.

Games, Cartridges, Basic and Audio Interface. All items at our original cost. (Many below new cost)

Video Environment +, Inc.
580 New Loudon Road
Latham, New York 12110
(518) 783-0376

NOTE: Please send bill if any.

please run this add in next issue

8/11/79

Bob,

HERE ARE MY ANSWERS TO QUESTIONS ON
THE PROGRAMMABLE KEYBOARD.

#1 - YES (A YEAR AGO?)

#2 - MAYBE (BUT OPTIONS #1 AND #3 LOOK BETTER)

#3 - MAYBE

I NOTICE IN THE CURRENT ISSUE OF
CREATIVE COMPUTING (August, 79; p. 22) THAT
THE FCC TURNED DOWN TEXAS INSTRUMENTS'
REQUEST ON THE RF MODULATION CHANGE.

I HOPE THIS MEANS THAT GALLY WILL GET
BACK ON TRACK.

HERE ARE SOME SLIGHT ALTERATIONS I
HAVE MADE TO SEVERAL PROGRAMS WHICH YOU
HAVE PUBLISHED:

(1) CHECKERS - BY ADDING:

1615 IF T > 0 GOSUB 2000

107
YOU CAN SEE YOUR MOVE DISPLAYED
IMMEDIATELY WITHOUT WAITING FOR THE
COMPUTER TO MOVE. BY THE WAY, I
STILL HAVE A BUG IN THIS PROGRAM
WHICH I CAN'T LOCATE. NEAR THE
END OF THE GAME WHEN THE COMPUTER
IS HEMMED IN, IT SOMETIMES MAKES
AN ILLEGAL MOVE.

(2) REVERSE - CHANGE:

2000 CY-20; PRINT "YOU WON IN",
#1, T, " MOVES "

KEEP UP THE GOOD WORK!

SINCERELY,

MIKE FINK

37221 FINK 7345 C

7345 CAVALIER DRIVE

NASHVILLE, TN 37221

MODEL NUMBER - BPA-1100

SERIAL NUMBER - 16120

8/31/79

Dear Mr Fabris:

First, I wish to respond to your "survey", as follows:

1. Doubtful
2. Probably
3. If it were well packaged + warranted, probably

The Model Number of my unit is BPA1100
Serial # 17230

An additional fix for "SLOT MACHINE" accounts for the case where you win, but your balance is $L = 0$;

1511 IF $M \leq \overset{\text{upper}}{\cancel{0}} \quad M = M + N$; GOTO 1515

Per your question about game testers on pg 76, I volunteer to review any game sent to me. I would be more than happy to get a look at the games before shelling out cash for potential junk or replication. Please count my offer in your considerations, if at all possible. By the way, do any of the ^(program) game vendors guarantee bug-free-ness or money refunded? They should, I think.

Hope to hear from you -

P.S. - your newsletter is very much a monthly highlight in my mail - I really look forward to it. Keep it coming!

Phil Shaler
3708 Big Horn Trail
Plano Tx. 75075

C. MULHOLLAND
RT. 4 BOX 424 H
NO WILKESBORO, NC
28659



John Hancock

Patricia



U.S. Postage 10¢

ROBERT FABRIS
3626 MORRIE DR
SAN JOSE, CA

95127

BoB:

✓ 10

:PRINT; NT=1; LIST will give

APPROX 500 BAUD OUTPUT TO TAPE.

ALSO MACHINE WILL ACCEPT PROGRAMS AT
THIS SPEED. (SAVES TIME ON LONG PROGRAMS)

NT=0 SHUTS OFF AUDIO AND NOTHING GETS
ON TAPE - EVEN THOUGH BAUD SPEED IS HIGHER,
SAVES TIME ON LIST.

ED MULHOLLAND

10?

Sept. 3, 1979

Robert Fabris, all around good guy
3626 Morrie Dr.
San Jose, CA

Dear Mr. Arcadian:

I'm sorry that I didn't respond to your survey earlier--I was hoping to add some things to my response, and got bogged down. Perhaps better late than never.

I guess my answer to all three questions is "Probably". I am indeed rather unhappy with Bally for puttering around so damn long. I see all the stuff that is available for the TRS-80, and wonder if I have made an error in choice. But then I look and all the nice colors and sounds I can get, and hold tight, still anticipating.

(In fact I would almost prefer #3 above, just to show Bally that someone can do it without them.)

My machine is one of the early ones from JS&A, first received in March 78, returned as defective, and replaced with another in July 78. Serial number is 3766, model BL-1200, labeled Home Library Computer in wood grain finish. Requires adapter plug to use cassette interface.

Regarding Black Box game, page 74. Line 145 clearly needs a slight correction, that being a comma after the first B, else screen is set up all wrong.

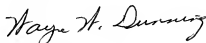
145 CX=-47; PRINT #2, B, ; (rest is OK)

I wonder if there might be some problems with this program. Some rays that I enter seem to stay inside for extremely long times. Maybe they get into some kind of perpetual inside loop??? Or am I too impatient?

I have very much enjoyed the ARCADIAN, especially parts on control of sound.

A few other comments on various parts on following page(s).

Sincerely,



Wayne W. Dunning
P.O.Box 4167
Wichita, Kansas 67204

Page 25: CALL 4910 gets Checkmate with 10 games
5585 gets Checkmate with 22 games, starting with variable scores
4920 same as 4910
6938 gives a pause, then back to Basic
When Checkmate gets called up, there is usually some trash up in the
score region to start with

CALL 3164 gets large OVER only
3159 gets GAME OVER

Page 39: CALL 3172 and 3177 both get the Menu

Page 45: I require the correction on page 47 to get ARCADIAN

With regard to correction for SIMON, if Delete line 170, then
where do 155, 160 and 164 GOTO ???

Page 58: I don't have the equipment to check Mr. Wurst. But on my TV I
can't agree with his Yellow, Cyan or Magenta. Using Scribbling
to check, I get pure red and blue. There is a little red in with
the green, causing a yellowish green. This of course could be in
my TV.

Page 75: I get alternating ARCADIAN with GAME OVER or just OVER, depending
upon whether I use 3164 or 3159. Is this correct?? The Big
Letter program on page 69 works just fine for me. Since it gives
only ten letters per line rather than 26, is it not actually more
than twice as big as life?

4 SEPT 1979

10
ad

DEAR ROBERT:

I RECEIVED MY BACK ISSUES OF ARCADIAN AND MY AUGUST ISSUE UNDER SEPARATE COVER. THANK YOU — AND SPECIAL KUDOS FOR YOUR CONTINUING EFFORTS.

TO DATE, THOUGH, I HAVE NOT RECEIVED A NOTE FROM YOU INDICATING ANY OTHER USERS IN MY AREA (ZIP 11xxx) NOR HAVE I RECEIVED MY COPY OF THE HACKERS MANUAL. PERHAPS YOU MIGHT SEND THE EXECUTIVE SOFTWARE DATA MENTIONED ON PAGE 16 IF THE HACKERS MANUAL IS NOT AVAILABLE.

I WOULD BE WILLING TO THROW MY HAT INTO THE RING REGARDING YOUR REQUEST FOR A VOLUNTEER TO REVIEW PROGRAMS. I'M FAIRLY WELL SET-UP TO HANDLE SOMETHING LIKE THAT — AS LONG AS I DON'T HAVE TO KEY THEM ALL IN.

IN THE PAST COUPLE MONTHS FOUR SUPPLIERS IN MY AREA HAVE TOLD ME THAT THEY NO LONGER INTEND TO HANDLE BALLY PRODUCTS. MOST FEEL THAT THE PRODUCTS ARE GOOD BUT THEY HAVE HAD SO MUCH HASSLE AND BROKEN-PROMISES FROM BALLY THAT THEY HAVE GIVEN UP. THE RESULT IS THAT I KNOW OF NO ONE AROUND HERE WHO STILL HANDLES BALLY. DO YOU?

IT SEEMS THAT THIS IS THE SORT OF THING WE
COULD MAKE A CASE OUT OF - SOMETIMES I'M
STRONGLY INCLINED TO PACK AND SHIP THE
WHOLE KIT AND KABOODLE BACK TO BALLY ALONG
WITH EXPLICIT DIRECTIONS REGARDING ITS ULTIMATE
DISPOSITION.

THE FOLLOWING IS AN AD FOR YOUR NEXT
ISSUE, IF YOU WOULD:

PROGRAMS AVAILABLE FROM DON DANIELS,
3 APEX RD., MELVILLE NY 11746:

2-PLAYER BATTLESHIP

1-PLAYER (TEAM) JOTTO/SENSOR TWO 120-WORD
VERSIONS AVAILABLE: GENERAL WORDS AND EXPERT.
VARIABLE SIZE/DIFFICULTY MASTERMIND

ALL FOR \$6 YOUR TAPE
ALL FOR \$7 HIS TAPE

Don Daniels

DON DANIELS
3 APEX ROAD
MELVILLE, N. Y. 11746

ST. GERTRUDE'S CHURCH

336 BEACH 38TH STREET

FAR ROCKAWAY, N. Y. 11691

10

8

SEPTEMBER 5, 1979

DEAR BOB,

oh I AM INTERESTED IN REVIEWING PROGRAMS AS MENTIONED IN THE LAST
ISSUE OF THE ARCADIAN. IF ANY AUTHORS ARE INTERESTED, PLEASE LET
ME KNOW. KEEP UP THE GOOD WORK.

SINCERELY,

Bill Rueger

10

9-5-79

Stephen R. Wilson
18015 Sally Ave
Cleveland, Ohio 44135
1-216-362-0311

Dear Bob,

Please find enclosed a check for \$21.50, this is for my membership in the Arcadians and also for the Bally book we discussed on the telephone on 9-4-79. Please send this out 1st class mail.

Also please consider this letter as affirming my interest in a "Bally Expansion" (Post Card)

You may also put my name and number in the Arcade as someone who would be happy to review Games and other programs. I am completely unbiased in my opinions.

Regards
Steve

P.S. A list of Arcadians in the general Ohio Region would be very much appreciated

TO:
BOB FABRIS
3626 MORRIS DR.
SAN JOSE, CA. 95127

BOB:

PLEASE PUT MY NAME ON YOUR LIST OF PEOPLE INTERESTED
IN THE KEYBOARD (REF. PG. 5 OF ARCADIAN). ALSO FOR ANYBODY
WHO WANTS AN AUTOMATIC ENDING AT THE END OF RECORDING A
PROGRAM, TRY THIS WHEN STARTING:

: PRINT ; LIST ; PRINT " : RETURN "

IF YOU KNOW THE ADDRESS OF THE BASIC LINE POINTER
COUNTER, I WOULD LIKE TO GET IT FROM YOU.

THANKS,

BOB STRAND

P.S. LINE 490 ON THE "BLACK BOX" PROGRAM IS WRONG.

IT READS: 490 IF M=0 IF @ (S)=1 M=-M; L=0; GOTO 500

THIS IS WRONG.

IT SHOULD BE:

M=-1

FROM:

BOB STRAND

10665 E. FOX AVE.

NORWALK, CA 90650

Dear Mr Fabius

I am just adding this note to thank you for being so prompt in sending me the literature I requested, and a subscription to "Aheadians".

P I have enclosed \$5.00 for the subscription and a dollar for the listing of the executive software.

I am very pleased with your articles and I am looking anxiously forward to seeing the programs that will be in the following issues.

I thought I would mention (if it hasn't been mentioned already) that you can speed up the baud rate of the interface to approximately 500 by setting NT=0 just before loading your program onto tape. NT=0
:PRINT;LIST
then hit go then when loading it back fh

✓ from tape to memory it plays it back at the same speed it was loaded (app 500 baud instead of 300) So far I haven't dropped a single bit loading it this much faster way. It's just great! 10

also for the do it yourself people who subscribe I have just recently installed my audio interface right inside the computer case. If you take out the P.C. board from the case it comes with you can mount it right inside the top section of the P.C. system. I have done this and added 2 triple pole single throw switches to be able to connect and disconnect the interface + power lines at the flick of a switch. If you are interested in hearing

or seeing more on installing the interface inside
with switches let me know I could send photos.

NOTE → The way that I have done it doesn't damage or
disfigure the interface at all so if someone wanted
to take it back out and sell it after they
get the keyboard it could easily be done.

I can also send you the correct wiring to the
service and board.

Thank you,

Ed Larkin

Recently I talked to some of the people who did the development of the Arcade for Bally. In answer to my questions about the add on [programmable keyboard] they said that the prototype is built (as we know) but the order to go into production is being withheld by the President of Bally because the consumer market turned out to be not as expected in terms of the services Bally wished to provide. Bally has instead turned its efforts to the commercial market and continues to develop new products in this area. Bally is interested in finding a manufacture who will take on production and support of the Arcade line. This is also the reason for holding back the "Music" ROM. So, it looks like, if you'd like to see the expansion of the Bally and know a manufacture willing to undertake such a thing, have it contact Bally.

THIS IS A PAGE TAKEN FROM A DOCUMENT THAT I HAVE WHICH INCLUDES ABOUT
140 PAGES OF ROUTINE DESCRIPTIONS SIMILAR TO THE SAMPLE, PLUS ABOUT
200 PAGES OF OBJECT CODES FOR APPARENTLY ALL THE ROUTINES IN THE MACHINE.
SCREEN ALPHANUMERIC DISTIM IF YOU ARE INTERESTED IN
DISPLAY TIME

```

Calling Sequence:      SYSTEM  DISTIM      DROP ME A LINE OR CALL ME
                        or
SYSSUK  DISTIM      AND WE'LL DISCUSS IT.
DEFB      (X co-ordinate)
DEFB      (Y co-ordinate)
DEFB      (options)

Arguments:             DE=X,Y co-ordinates
                       X =Options   (see note below)
                       IX=Alternate Font Descriptor (not loaded)

Outputs:               DE=Updated

```

Description:

This routine displays the system time (GTMIN,GTSECS) at the co-ordinates specified in the form MM:SS, where M=minutes, S=seconds. Seconds are optional.

Notes:

The small character set is used and one level of enlarge factor is permitted.

Options are the same as the alphanumeric display routine except that bit 7=1 to display colon and seconds; bit 7=0 to suppress colon and seconds.

Incidentally, the "PX(X,Y)" instruction is ok, but the discription should be for the dot at the X & Y co-ordinates. (in the little belly manual)

IF PX(X,Y) = 1 GOTO - - -
OR PRINT PX(X,Y), ETC.

PX BEING THE DOT, (DOT AS IN BOX X, Y, 1, 1)
AT THE X & Y CO-ORDINATES

IF THE DOT IS THE SAME AS THE FC, PX = 1
IF THE DOT IS THE SAME AS THE BC, PX = 0

Steve - Since you are now a screen expert: Any comments? /
Bst

A simple pgm. to illustrate this would be

```
10 BOX 0, 0, 20, 20, 1
20 IF PX(0,0) PRINT "1"           (= 1 IS ASSUMED)
30 IF PX(0,0) = 0 PRINT "0"
40 GOTO 20
```

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as the printout loop moves the box up the screen, past the X(0), & Y(0) co-ordinates, the printed out "1" will become "0"

OR more simply put. —

```
10 BOX X, Y, 20, 20, 1           (X=0, Y=0)
20 PRINT PX(X,Y)                 (X=0, Y=0)
30 GOTO 20
```

As I see it, this instruction could be used to identify a player's position in games such as checkers, treasure hunt, othello, ETC.

556 Langfield
Northville, Mi. 48167
August 31, 1979

Dear Bob,

Please forgive me for not answering you earlier. I have been on vacation.

My responses to your questionnaire on the expanded keyboard: #1 - yes
#2 - yes
#3 - yes

The following are my comments on the PX function (your material is enclosed):

The possibility of the PX function as a location sensor seems reasonable if you only have to monitor whether a player (meaning a visible marker such as a BOX) is at a given location or not.

I have enclosed a simple program which uses the $PX(X,Y)$ function as a location sensor in the manner of a trap being sprung. Ten traps (explosive mines, invisible enemy ships, etc.) are set randomly, and if the player moves over any of the trap locations, he is trapped (caught, exploded, etc.).

I don't see how this function could be used in two-player games in general, since only two conditions can exist: $PX(X,Y)=0$ or $PX(X,Y)=1$. In many games, monitoring is needed for three functions: PLAYER #1 (black), PLAYER #2 (white), and neither player. This is the case with most board games.

Two-player games where both players have black markers could use PX to monitor both players, since only one player can move at any one moment.

Also, PX could be used to monitor the intersection of two player markers if they were reverse BOX markers. There intersection would then be white if the markers are black, and the PX function would equal 0 when they intersected.

Sincerely yours,


Steven L. Walters

PROGRAM USING PX(X,Y) AS A LOCATION SENSOR

```
10 CLEAR
20 FOR N=1 TO 19 STEP 2
30 @ (N)= RND(100) - 50
40 @ (N+1)=RND(60) - 30
50 NEXT N
```

Sets 10 location sensors at
PX (@ (N), @ (N+1))

```
60 (see optional section)
```

```
90 X=-70; Y=0
100 X=JX(1)x3+X
110 Y=JY(1)x3+Y
120 IF X<-70 X=-70
130 IF X>70 X=70
140 IF Y<-35 Y=-35
150 IF Y>35 Y=35
160 BOX X,Y,5,5,1
```

Start location for box marker

Sets movement limits on box marker

displays box (player marker)

```
200 FOR N=1 TO 19 STEP 2
210 IF PX( @ (N),@ (N+1) )=1 GOTO 300
220 NEXT N
230 BOX X,Y,5,5,2
240 GOTO 100
```

Test if marker is over any
PX sensor location

Erase marker, repeat

```
300 BOX X,Y,7,7,3
310 BOX X,Y,9,9,3
320 PRINT "CAUGHT!"
330 STOP
```

Visual feed back for sensor response
(trap appears surrounding marker)

Option to display sensor locations visually as marker is moved about

Add the following:

```
60 GOSUB 400

400 FOR N=1 TO 19 STEP 2
410 BOX @ (N), @ (N+1), 11, 11, 1
420 BOX @ (N), @ (N+1), 13, 13, 3
430 NEXT N
440 RETURN
```

```

1 .SPACE WAR
2 . D IBACH 7-79
10 GOSUB 100
20 IF TR(1)=1GOSUB 200
30 IF H=0GOSUB 800
40 IF JY(1)≠OG=JY(1);GOSUB 300
50 IF TR(2)=1GOSUB 400
60 IF H ≠ 0 GOSUB 800
70 IF JY(2)≠OG=JY(2);GOSUB 500
80 GOTO 20
100 CLEAR ;BC=0;FC=0;N=RND (12)
+9;C=0;D=0;GOSUB 700;FOR M=
1TO N;X=RND (150)-75;Y=RND
(80)-40;BOX X,Y,1,1,1;NEXT
M;A=RND (76)-38
110 B=RND (76)-38;H=0;FC=7;
RETURN
200 H=0;G=KN(1)÷(-3);LINE -60,
A,4;MU=7;LINE 60,G,3;LINE
-60,A,4;LINE 60,G,3;IF G<B
+5IF G>B-5H=1
210 RETURN
300 A=A+5*G;IF A>40A=A-5
310 IF A<-40A=A+5
320 RETURN
400 H=0;G=KN(2)÷3;LINE 60,B,4;
MU=2;LINE -60,G,3;LINE 60,
B,4;LINE -60,G,3;IF G<A+5
IF G>A-5H=2
410 RETURN
500 B=B+5*G;IF B>40B=B-5
510 IF B<-40B=B+5
520 RETURN
700 CX=-65;CY=40;PRINT C,D
710 IF (C=15)+(D=15)=0RETURN
720 NT=0;CX=-8;CY=5;PRINT
"GAME";CX=-8;CY=-5;PRINT
"OVER";NT=3;FC=0;BC=7;STOP
800 BC=7;÷(23)=255;÷(21)=255;
BC=0;FC=0;IF H=1GOTO 810
805 BC=7;FC=7;S=-60;T=A;GOTO
815
810 BC=7;FC=7;S=60;T=B
815 BC=0;FC=0;IF T>33T=33
817 BC=7;FC=7;IF T<-34T=-34
818 BC=0;FC=0;LINE S-5,T+10,4;
LINE S+5,T-10,1
820 BC=7;FC=7;LINE S+10,T+5,4;
LINE S-10,Y-5,1
822 LINE S+5,T+10,4;BC=0;FC=0;
LINE S-5,T-10,1

```

```

824 LINE S+10,T-5,4;LINE S-10,
T+5,1;FC=7
830 FOR N=1TO 24;BOX S,T,N,N,2;
NEXT N;÷(23)=0;÷(21)=0
840 CX=-65;CY=40;NT=0;PRINT
" ZZZZZAP!";NT=3;
IF H=1C=C+1;B=RND (76)-38;
GOTO 860
850 D=D+1;A=RND (76)-38
860 GOSUB 700;H=0;RETURN

```

This is a two player game. Player one owns an invisible space ship on the left hand side of the screen. He can move it up or down by pushing his joystick forward or back. When he pulls his trigger, he shoots across the screen at the invisible ship of player 2. A shot also exposes his position on the screen. The invisible ship of player 2 is on the right side of the screen and is similarly controlled. The knob setting determines the angle of the shot.